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# Intellectual Property Rights – A Researcher's Perspective

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## **World Trade & Intellectual property**

The world trade has undergone significant change in the last decade. Many new issues have come to the forefront to influence the trade patterns. The concerns of environment, biosafety, food and nutritional security, assertions of human rights, the sympathy for child labour, biopiracy of folklore and traditional knowledge based concepts and innovations to mention a few, have been exerting dominant influences. Transfer of polluting industries to developing countries, using poor economies for pollution control, exploitation of cheap labour, outsourcing from developing countries to developed countries are all totally new issues defying the relevance of the traditional theories of trade and the international boundaries.

At the same time, the measures for protecting of the inventions and intellectual property rights and its trade gained momentum. These rights were being dealt with in the international trade even earlier, but the scope and coverage of trade-linked intellectual property rights got enlarged with the coming in being of World Trade Organization (WTO), Trade Related Intellectual Property Rights Agreement (TRIPS) and the measures such as protection of Geographical Indications got place in the charter WTO at the behest of developing nations.

R & D generates products and processes. These are protected using IP Rights. The products combined with the know-how forms a technology, which is transferred to the industry for production of the product for consumption by the public & industry,

in the process generating the profits for the company and royalties for the inventor, host institute and project support institutions.

Intellectual property is a major component in what is traded during the process of technology transfer. To understand the underpinning better let us have an overview of what constitutes IP Rights, type of intellectual property rights, how to protect them, patents, criteria of patentability patent specifications, procedure, importance & uses of patent information.

## **Intellectual Property**

Property consists of two types viz., Corporeal and incorporeal property. This may be represented as in Figure 2. All the forms of property other than the intellectual property is well known and traded. Intellectual property is that property which results from the intellectual efforts of individuals and Organizations, In other words such property is the "Creation of human mind & Human Intellect". The ownership of property of any kind is always required to be protected in order to prevent such property from being misappropriated or misused. The rights associated with the protection

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of intellectual property are referred to as *intellectual property rights* (IPR). These are similar to any property consisting of movable or immovable thing wherein the owner may use his property as he wishes and nobody else can lawfully use his property without his permission.

### **Types of Intellectual Property**

There are seven different forms of intellectual property, which are recognized by the Patent offices all over the world. These are:

- 1. Patents:** Patents are statutory rights granted to exclude others from making, using, exercising, distributing or selling the patented invention. These are meant for protection of inventions in all fields of human endeavor with certain exceptions in certain countries. Patents result in a full public disclosure of a patented invention. They are limited by the territory of the country and are issued for a fixed period of time (20 years).
- 2. Copyrights:** A right that protects original works of authorship fixed in a tangible medium of expression. Copyrights can include published and unpublished works—literary, dramatic, musical and dance compositions, films, photographs, audiovisual works, paintings, sculpture, and other visual works of art, as well as computer programs—from being copied. Copyright protects the expression of ideas, not the ideas themselves, and gives their authors exclusive rights to reproduce the copyrighted material. These rights are therefore for protection of literary, artistic, dramatic, musical works, cinematographic films, recordings, broadcasts, software, research papers, journal articles, published books, magazine articles & other Published materials.
- 3. Trademarks:** A non-functional word, logo, slogan, symbol, design—or any combination of these—that distinguishes a product or service. Essentially brand names and trademarks promote competition by giving products corporate identity and marketing leverage.

**Industrial Designs :** Industrial designs refer to creative activity which result in the ornamental or

formal appearance of a product and design right refers to a novel or original design that is accorded to the proprietor of a validly registered design. The essential purpose of design law is to promote and protect the design element of industrial production. It is also intended to promote innovative activity in the field of industries. The existing legislation on industrial designs in India is contained in the New Designs Act, 2000 and this Act will serve its purpose well in the rapid changes in technology and international developments.

- 1. Design of Integrated Circuits :** It provides protection for semiconductor IC layout designs. Layout design includes a layout of transistors and other circuitry elements and includes lead wires connecting such elements and expressed in any manner in a semiconductor IC. Semiconductor IC is a product having transistors and other circuitry elements, which are inseparably formed on a semiconductor material or an insulating material or inside the semiconductor material and designed to perform an electronic circuitry function.
- 2. Geographical Indications :** Geographical indications of goods refers to the place of origin of a product, which is characterized by certain specific qualities or reputation that the product has acquired due to the place of origin giving it a distinctiveness.
- 3. Trade Secrets:** Trade secrets are used for protection of undisclosed information. It may be a formula, pattern, a device, manufacturing process, method of doing business, or technical know-how that gives its holder a competitive advantage. Trade secrets cover a wide spectrum of information, including chemical compounds, machine patterns, customer lists and software. No Indian law protecting trade secrets exists. The subject matter of a trade secret must be secret. A trade secret can be an invention that is either patentable or non-patentable. The trade secrets involve no public disclosure of the information.

Of these patents are the most important form of protection for R&D organizations. In certain areas like computer softwares, databases, technical research papers, copyright is the most sought after protection.

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Trademark is used in combination with patent and or copyright to create brand name and brand equity. More recently patenting in the field of biotechnology has become important.

### **Protection of Intellectual Property**

The owner of an invention can best protect his property if he keeps this out of the knowledge of rest of the world. But in this situation the progress of his research and that of the nation will be hampered and also the owner of the property will not be in a position to use his property at his will. Therefore, appropriate national legislations govern the intellectual property rights (IPRs).

The national legislation specifically describes the inventions, which are the subject matter of protection and those, which are excluded from protection. For example methods of treatment of humans and animals by surgery or therapy and inventions whose use would be contrary to law or morality, or inventions injurious to public health are excluded from patentability in the Indian legislation.

IPRs are intangible rights, which grant an exclusive right to the inventor to impede others to freely exploit an invention. IPRs in general, and the patent system in particular, were established originally as a way to reward creativity and promote innovation. They allow the holder of the rights to recoup the investment in research, required for developing the new invention; in exchange the society receives the benefit of the disclosure of the new invention.

Governments grant patents to inventors on filing an application for an invention, which meet the statutory requirement of patenting. An inventor residing in one country can apply for a patent in other countries as well. Once a country grants a patent, the legal rights attendant this are enforceable, only within the territory of the granting country. Therefore, for protection of an invention in many countries, an inventor needs to obtain a patent in each country where he wishes to have protection.

Although the benefits bestowed on patentees are substantial and are immediately apparent, these are realized only when the patent is commercialized. The limited monopoly granted to the patentee is simply

the small price that society pays in return for inventor's full disclosure of his new invention.

The basic statutory requirements for an invention to be patentable, the invention should be 1) Novel, 2) non-obvious and 3) useful. For testing of these conditions, the application has to pass through a lengthy and stringent procedure. Because of many barriers to obtaining a patent, a skilled patent practitioner, agent or attorney should carry out the patenting process. Every registered patent agent has a scientific background and has passed an examination testing the agent's knowledge of patent laws. The protection of IPRs should be practiced right from the initial stages of any research project to its end. In addition, if during the course of working of an existing project, a researcher obtains a lead, an event or a result that satisfy the patentability criteria or leads to an idea for solving another problem, this new idea should also be handled in a manner which will preserve its legal identity as the researchers intellectual property.

One of the primary reasons for taking these early steps to protect IPRs is to keep the research records that will help to identify the invention at an early stage. In India, we have a first to file system like most other countries in the world. Patents are awarded to the first person to apply for a patent. Unlike this in USA, patent is awarded to the first person who came up with the idea, in such cases the date of conception of an idea is of critical importance. As one would expect, research records play an important role in both the cases. For this reason, the protection of IPRs should start in the initial stages of any research project, whether it is an M.Tech. Project, a Ph.D. Project or a Govt. or industry supported project, in order to identify a patentable invention early.

Many inventors are not able to resist the tendency to immediately discuss new observations, results or ideas with other researchers. Though these immediate discussions do not usually affect the legal determination of inventorship, such discussions may result in dispute over ownership of the initial idea in case of significant scientific contribution or takeover of the idea itself by another group of scientists.

The following steps will help the researcher to establish their ownership of inventions. These steps consist of simply documenting events in a legally

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acceptable manner.

### **Documentation of Research**

When a researcher first has an idea for solving a problem, he should record the idea in a bound laboratory notebook. A member of the laboratory can sign the notebook page as a witness and dates it. Any disclosure of the idea should be made only to the persons who need to know about it. The recordation of ideas helps to clarify the honest confusion as to the inventor-ship, and it may discourage the recipient of the information from attempting to be identified as an originator of the idea. This will also help a patent attorney to prove the true identity of an inventor in subsequent legal proceedings.

Generally research results are positive or negative based on the particular design of the work plan and the desired result. It is just as important to document work that gives a negative result as it is to document work that gives a positive result. In case of negative results, it is possible that they may lead to another significant invention.

The primary purpose of recording research results is to prove that the particular specific research was done a) by a particular person, b) at a particular time and c) under particular conditions.

### **Maintaining Confidentiality**

The primary goal of any research programme is to produce result that will benefit the researcher, the employer, the funding agency and eventually the public. Protection of laboratory notebooks can be of great importance in the pursuit of this goal. Accurate and complete laboratory records facilitate efficient protection of the patent rights.

The researchers must take steps to protect the confidentiality of their work until the time comes when the legal protection in the form of filing of a patent is in place and a decision is made to publish or otherwise disseminate the work. From the beginning of the project, researchers should take precautions to prevent unwanted disclosure of their work. An inadvertent loss of confidentiality of research work/data can jeopardize efforts to obtain a patent protection. Similarly, an incomplete search of literature

or patent database may also have the same effect.

### **Communication to the Colleagues and Associates**

Communication of research work to associates can be in the form of discussions, seminars or written reports. Much can be gained from such discussions and, therefore, such communications are desirable. However, it is advisable to limit the number of persons receiving such confidential communications. Only persons who can contribute useful ideas or have a particular need to be aware of the subject matter should be invited to the seminars. Written reports should be sent to only these persons as well. There should be no recording or unnecessary copies made of communication. Also care must be taken not to leave copies of a report in a place accessible to people outside the research group. Leaving a copy on a seminar table or in a library can lead not only to a loss of patent rights to an invention but also a premature disclosure of the confidential research work to the public.

The disclosure to people outside a research institute may pose additional confidentiality problems. Therefore, a confidential relationship must be established before any communication is made. Thus limiting and controlling the communication of research is necessary for protecting patent rights of inventions. There should be some communication in most instances, but this should be limited as much as possible and all communications should be done in a confidential manner. Figure 4 summarizes the steps to maintain confidentiality of work.

### **Establishing a Confidential Relationship**

Before a researcher discloses confidential information to any person outside his research group, steps should be taken to insure that the recipient of the disclosure will keep the information in confidence. Impressing upon the discloser that the information is, in fact, confidential, can do this or he must be informed in writing that the information must be kept in confidence. Also all documents associated with the disclosure should be clearly marked as "Confidential". These precautions will remind the discloser of his duty to keep the information in confidence.

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## **Publishing Research work**

A prime desire of most researchers is to publish their research work for peer review. However, premature publications can have certain adverse effects upon any subsequent attempt to obtain patent protection for the work disclosed in the publication. Therefore, it is very important for the scientist to realize the legal consequences of publishing research work.

The term publication has a specific legal meaning in the context of patents. A publication is a conveyance of information in a coherent way in a specified format that the information is available to the general public. It must have sufficient details to enable a person skilled in the art to practice the work. Such a publication is known as "an enabling disclosure". For example, if the publication pertains to making of a Genetically modified (GM) product with enhanced protein content, and the details given are sufficient to enable a biotechnologist to make the GM product, then the publication is an enabling disclosure. Because it is an enabling disclosure, it destroys the confidentiality of the invention. Once the confidentiality is destroyed, it can no longer be recaptured. Therefore, if publication is being considered, the researcher should first make a decision regarding the preservation of patent rights. Figure 5 depicts the effect of publications on patents.

Thus, a premature publication can jeopardize both Indian and foreign patents and a full assessment of patentable invention for Indian and foreign patents must be done before publication. The relationship between publication and patent may be summarized as in figure 6.

## **Prior Public Use**

Like publication, prior public use is another way by which the confidentiality of the invention can be lost. The term "Public Use" like publication has a specific legal meaning. A public use occurs when an invention is used in such a way that the general public is not prevented from observing the use. However, a public use, which is necessary to evaluate and perfect an invention, is referred as "experimental use". An example of experimental use in biotechnology area is the testing of genetically modified (GM) crop in the field. Even when a GM crop is effective in green house

tests, there may remain some uncertainty as to whether it will be effective in the field under the contemplated use conditions. Therefore, when a GM crop undergoes such field testing, it is advisable to clearly state on the testing protocols that it is an experimental testing. It is only after such field tests are completed, and the GM crop has been shown to be effective, biologically safe and non-toxic for human consumption that public use may be made. The distribution of samples for consumer acceptance and efforts directed to marketing after effectiveness of the GM crop has been established constitute public use and not experimental use.

## **Disclosure to a Government Department**

The scientists need to disclose the research work to a government department for a number of reasons including with a grant application, as progress report of the work for grant of next year, with a completion report or for taking care of the bio-safety regulations, for approval of GEAC or RCGM for taking up the work or commercialization of the GM microorganisms, in conjunction with a request to manufacture or test the invention. There are many such instances and in each such instance confidential proprietary information is going to an outsider.

There are general guidelines, which can be used to protect and preserve the confidentiality when making a disclosure to a government department. In most cases, the government department funding the research work also supports the filing of a patent application and is also one of the assignee of the patent. In such cases, there is obligation on the part of the department to keep the information confidential. Any disclosure to a government department should be sufficiently complete and accurate so that the department can make appropriate decision on the issues involved. The following guidelines should be followed when a submission is made:

1. The material, which is confidential, should be clearly marked.
2. File a patent with the patent office or through the department, if the invention is patentable, before submission.
3. Provide sufficient details to the government department for complying with the regulations, while retaining the confidential vital parts of the

invention.

4. Do not disclose the production yield data that is not relevant to the department's consideration.

The overall nature of the submissions to the government departments should reflect a total spirit of compliance. Any questions arising in a particular situation might best be addressed by communicating with the Officer concerned at the government department before making a submission. Finally, if a patent action is possible it should be taken before any submission.

### Patenting the Invention

Once a decision is made to go ahead with a patent application, then participation by a patent attorney, whether through the institute, university, company or through the funding department, is virtually indispensable. The inventor should disclose all the invention details and closest prior art to the attorney. Patent attorney or the expert committee at the funding department will then ascertain the patentability of the invention. In addition, in biotechnology, there are often materials, such as microorganisms, which require special attention. Such living materials have to be deposited at one of the many culture depositories (International Depository Authorities (IDA) for a PCT or foreign patent) so that the culture is available to the public if the patent is granted. Institute of Microbial Technology, Chandigarh has been designated as the IDA for the purpose of

patent procedure after India's accession to the Budapest Treaty for the deposition of microorganisms in December 2001.

### Patenting Process in India

Once an application for patent is filed with the Indian Patent Office, a series of events ensues that can lead to the granting of a patent. This series of events is collectively known as the *prosecution* of the application. A knowledge of these events may help the inventor to aid the patent attorney during the prosecution of the patent application before the patent office and also help alleviate some of the anxiety of the inventor while the application is pending with the patent office.

### Jurisdiction

In India, there are four Patent Offices at Kolkatta, New Delhi, Chennai and Mumbai with head office at Kolkatta. All the said offices deal with the patent applications independently up to the stage of acceptance. However head office issues a serial number, seals and grants the patent. The patents act 1970 does not allow any person to file application for patent in any of the offices. The applications are required to be filed according to their jurisdiction in accordance with the rule 4 of the Patent Rules 1972. If the application is filed in wrong jurisdiction, it will be rejected *ab-initio* and abandoned. The following are the terrestrial limits for the purpose of jurisdiction.

Patent Office	States
Patent Office Branch, Delhi W-5, West Patel Nagar, New Delhi	UP, Uttranchal, HP, J&K, Punjab, Haryana, Rajasthan, Delhi
Patent Office Chennai, Rajaji Bhawan, Chennai	Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Lakshdweep, Pondicherry
Patent Office Mumbai Lower Parel (West), Mumbai	Maharastra, Gujrat, Madhya Pradesh, Goa, Daman, Diu, Nagar, Dadra Nagar Haveli, Chattisgarh
Patent Office, Kolkatta Nizam Palace, Kolkatta	Rest of India

### The Persons who can apply

Inventor himself can file an application for patent solely or in case of several inventors jointly.

The application can also be filed by the assignee of the inventor claiming right to make application, solely or jointly or by legal representative of any deceased person who immediately before his death was entitled

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to make such application. In case, the application is made by the assignee, an assignment or endorsement duly signed by the inventor or inventors to be filed.

### **Kinds of Applications**

An applicant can file an ordinary application under the Patents Act 1970 or an international application under Patent Cooperation Treaty (PCT). In case of International applications under PCT, the applicant is required to file application with receiving office at New Delhi, Chennai, Mumbai or Kolkatta, as per jurisdiction or with Bureau of WIPO directly by paying the requisite fee. In cas of ordinary application under the Patent Act 1970, the following types of applications can be filed :

- I. Ordinary application with complete or provisional specifications.
- II. Cognate application
- III. Divisional application
- IV. Patent of Addition
- V. Conventional application

### **Examination of Patent Application**

The patent applications are taken up for examination by the Patent Office in the order of their filing. However, the divisional applications and patent of addition are taken up for examination on priority basis due to their shorter term. Also applications for inventions relating to food and drugs were taken up for examination on priority basis when their term of patent was seven years from the date of filing of complete specification or 5 years from the date of sealing, whichever is shorter.

### **Opposition**

When the application is accepted by the Patent Office, its acceptance is notified in the Gazette of India, Part III, Section 2. Any interested person can oppose the grant of patent within four months from the date of advertisement or notification of such acceptance in Gazette or within such further period not exceeding one month in the aggregate (total 5 months). However, request for such extension must be filed before the expiry of such period of four months. The following grounds are available to any interested person for

opposing the grant of patent.

- a) the applicant for patent has wrongly obtained the invention
- b) The invention has been published before priority date or before filing date in any specification filed on or after 1st January 1912, or any documents published in India or elsewhere.
- c) The invention has been claimed in any of the complete specification published on or after the priority date of the applicant's claims for the invention.
- d) The invention as claimed was publicly known or used in India.
- e) The invention is obvious and does not involve the inventive step.
- f) The invention is not an invention within the provisions of the Indian Patent Act 1970 or not a patentable invention.
- g) The invention is not sufficiently and clearly described in the patent specification.
- h) The application has failed to disclose the information u/s 8, regarding corresponding foreign applications or has furnished false information.
- i) The application for patent was not made within 12 months from the date of conventional priority date in case of conventional application.

### **The Patent Examiner**

Once the patent application has been submitted to the patent office accompanied by certain formal documents and proper filing fees. The list of documents and the schedule of charges is shown in Table 1 above. Patent Office issues a patent application number (PAN) and a date of filing of patent which is also known as priority date. The application is then routed to a particular examination group/specific examiner who is technically trained/competent in the subject matter/area related to the patent application. For example, a patent application relating to biotechnology invention will be assigned to an examiner knowledgeable in biotechnology. The examiner's primary role is to make sure that the invention in question fulfills all the statutory requirements of novelty, inventiveness and usefulness, under the patent law.

The patent examiner will first review the application to make sure that all formal documents/requirements have been met. For example, all patent applications must have specifications and one or more claims. The specifications generally consist of a title,

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an abstract, prior art or background of the invention, drawings and description of drawings and a detailed description of the invention. Once the examiner is satisfied that the requirements with respect to the format of the application have been satisfied, he goes to the next step. The next step is to evaluate the invention against the requirements of the Patent Act for a patentable invention. These statutory requirements are that the claimed invention be 1) novel, 2) non-obvious and 3) useful.

### **Grant of Patent**

When the complete specification in support of application for patent has been accepted and no opposition is filed or where the application was opposed and the opposition was finally decided in favour of applicant or application has not been refused by the Controller under the Act, an applicant is required to file a request for sealing along with the prescribed fee at the Patent Office Kolkatta, within six months from the date of notification of acceptance of such application in the Gazette of India Part III, section 2 or within extended period of 3 months in aggregate. If such fee for sealing is paid, the Controller shall cause the patent to be sealed with the seal of the Patent Office and the date on which the patent is sealed, shall also be entered in the register of grant. The patent, then, stands granted. The patent is granted for a period of 20 years from the date of grant for any invention.

### **National Legislation**

The various rules and regulations related to patent are listed in this section. Patent Office has its own website at <http://www.patentoffice.nic.in>. The website provides information regarding the following matters:

- a) Patent Act 1970
- b) Patent Rules 1972, and as amended in 1996 and 1999. These rules contain various forms required to be filled and various fees required to be paid from time to time.
- c) A manual of Patent Office Practices and Procedures, which gives information regarding practice followed by the patent office regarding patentability, PCT applications, etc.

- d) Frequently asked questions (FAQ) and their answers regarding Geographical Indications.
- e) Current News and update.

### **International Treaties**

India is a member of the following international Treaties concerning patent matters:

- a) Convention to establish the World Intellectual Property Organization
- b) Paris Convention for the Protection of industrial property with effect from 7th December 1998
- c) Patent Cooperation Treaty with effect from 7th December 1998
- d) WTO with effect from 01.01.1995
- e) Budapest Treaty on international deposition of microorganisms for the purpose of patent procedure with effect from 17.12.2001.

### **Related Websites**

The following websites provide information about the patents in the respective countries and the patent databases for a free patent search and full patent documents :

<http://www.uspto.gov> : USPTO

<http://www.wipo.int> : WIPO. This provides linkages to the websites of the various intellectual property offices of the world.

<http://www.epo.org> : EPO